REMARKS/ARGUMENT

Claims 1, 2 and 5-18, 20, 21 and 23-28 are currently pending.

The Office Action rejected (1) claims 1, 2, 15, 23 and 24 under 35 U.S.C. § 103 as obvious over JP 62-297451 ("Narita") in view of U.S. patent 6,521,098 ("Lin"); (2) claims 27 and 28 under 35 U.S.C. § 103 as obvious over JP 62-297451 ("Narita") in view of U.S. patent 6,521,098 ("Lin") and U.S. patent 6,193,856 ("Kida"); (3) claims 1, 2, 15, 23, 24, 27 and 28 under 35 U.S.C. § 103 as obvious over U.S. patent 4,107,019 ("Takao") in view of U.S. patent 6,521,098 ("Lin") and U.S. patent 6,193,856 ("Kida"); (4) claims 1, 2, 15, 23 and 24 under 35 U.S.C. § 103 as obvious over U.S. patent 4,107,019 ("Takao") in view of U.S. patent 6,521,098 ("Lin"); (5) claims 5, 6, 25 and 26 under 35 U.S.C. § 103 as obvious over Takao, Lin, and U.S. patent 5,981,092 ("Arai"); (6) claims 7-14 under 35 U.S.C. § 103 as obvious over Takao, Lin, Arai, and U.S. patent 5,522,976 ("Campet"); (7) claims 16-18 under 35 U.S.C. § 103 as obvious over Takao, Lin, and U.S. patent 5,831,760 ("Hashimoto"); (8) claim 20 under 35 U.S.C. § 103 as obvious over Takao, Lin, and IBM technical disclosure; and (9) claim 21 under 35 U.S.C. § 103 as obvious over Takao, Lin, and U.S. patent 5,905,590 ("Van Der Sluis"). In view of the following comments, Applicants respectfully request reconsideration and withdrawal of these rejections.

The present invention relates to a target for a magnetically enhanced sputtering device which is dense (by virtue of its being spray coated) and oxygen-deficient (with respect to the stoichiometric composition NiO). The denseness and oxygen-deficiency are physical

characteristics of the invention target. These physical characteristics provide the invention target for a magnetically enhanced sputtering device with improved properties which, prior to the present invention, were not available to the public.

More specifically, the undisputed evidence of record (Rule 132 declaration) demonstrates spray coating allows formation of targets having much higher densities (lower porosity) than pressing and sintering, resulting in improved targets. (Rule 132 dec, par. 2). For example, pressing and sintering a target contains predominantly nickel oxide results in a target having a density of 75%-85%. (Rule 132 dec, par. 3). In contrast, spray coated targets containing predominantly nickel oxide generally have much higher density, for example 95%-97% density. (Rule 132 dec, par. 4).

Further, the evidence of record demonstrates that targets having higher density have improved properties as compared to targets having lower density, including but not limited to improved stability during processing. Before sputtering/during vacuuming, a smaller porosity implies that fewer impurities have been adsorbed from air and, thus, a quicker degassing of the vacuum chamber; and during sputtering, a smaller porosity decreases the apparition of micro arcs at the surface of the target and, thus, there is a higher stability of the process as well as decreased aging of the target. (Rule 132 dec, par. 5).

Still further, the examples and figures in the present application demonstrate that the voltage on the spray-coated, oxygen-deficient targets of the present invention (figure 2) shows appreciable transition among varying oxygen concentrations, whereas the Ni target of the comparative example (figure 1) does not. As explained on page 10 of the present application, this difference means that the invention targets make "it possible to run the

process with greater stability, while still guaranteeing optimum control of the properties of the films."

Accordingly, the undisputed evidence of record demonstrates that (1) spray-coated, oxygen-deficient targets are different from other targets for a magnetically enhanced sputtering device; and (2) spray-coated, oxygen-deficient targets have different, improved properties from other targets for a magnetically enhanced sputtering device.

The primary references, Takao and Narita, are deficient because (1) they do not teach or suggest a target that is spray-coated; (2) they do not relate to magnetically enhanced sputtering device; and/or (3) they relate to blending of Ni/NiO.

With respect to (1), the Office has stated that it has not given the "spray-coating" limitation patentable weight. (Office Action at 18). Applicants respectfully submit that failing to give the "spray-coating" limitation weight and full consideration is error -- as discussed above, the undisputed evidence demonstrates that spray-coating results in a different product having improved properties. Accordingly, the "spray-coating" limitation should be given full weight and consideration.

With respect to (2), as demonstrated by the examples and figures 1 and 2 of the present invention, running magnetically enhanced sputtering devices with different targets results in different properties. Thus, "wherein the target is capable of depositing film within a magnetically enhanced sputtering device" in the claims is a relevant consideration which cannot be ignored.

With respect to (3), Narita "blends" his compositions, and Takao's target is a "compacted powder mixture of Ni and NiO." Such blends/mixtures differ from the required

oxygen deficient NiOx of the claimed invention, for example, in that in a mixture like Takao's or in blends like Narita's, the two materials are not chemically linked -- they are two separate chemical compounds in a solid state. In stark contrast, oxygen deficient NiOx is one chemical compound in which atoms are covalently linked.

Further yet, Takao's mixture and Narita's blends would be expected to have different properties such as, for example, different conductivity properties as compared to the NiOx compounds of the present invention given that, in Takao's mixture and Narita's blends, NiO would be expected to dump the conductivity given that the NiO is on a microscopic scale. Only an oxygen deficient compound such as those required in the present invention would meet the requirement that "the target has an electrical resistivity of less than 10 ohm.cm."

Finally, no evidence exists to indicate that the nickel oxide in Takao's powder or Narita's blends is oxygen-deficient with respect to the stoichiometric composition NiO as required by the claims. Based on the sparse disclosure in Takao and Narita, there appears to be a simple mixture of two different powders which have not reacted with each other -- one powder is Ni and the other is NiO, a non oxygen-deficient nickel oxide.

Lin cannot compensate for these fatal deficiencies. Lin does not disclose a target which has been spray coated and which has the required oxygen deficient NiOx of the present invention.

The remaining applied references do not compensate for these fatal deficiencies as well. Nothing in any of the references would have motivated one of ordinary skill in the art to modify the disclosures in the primary references to spray coat an acceptable target in a

magnetically enhanced sputtering device as required by the pending claims, and/or to modify them in such a way as to spray coat a target having oxygen deficiency and/or the electrical resistivity set forth in the claims. With particular reference to Kida, Kida's col. 3 does not teach or suggest a ceramic layer containing Ni. Further, Kida's col. 5 relates to an underlayer, not Kida's "ceramic layer." Thus, Kida's col. 5 does not disclose a NiO "ceramic layer," let alone the presently claimed ceramic target having the required NiO.

In view of the above, Applicants respectfully request reconsideration and withdrawal of the pending rejections under 35 U.S.C. §103.

Applicants believe that the present application is in condition for allowance. Prompt and favorable consideration is earnestly solicited.

Respectfully submitted,

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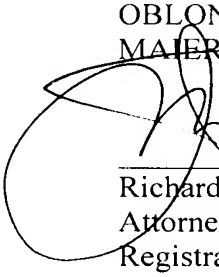

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